



HIPPS in the GOM: A Regulatory Perspective

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Introduction



- What does a subsea High Integrity Pressure Protection System (HIPPS) look like?
- How has BSEE been involved in the development of HIPPS design philosophy?
- BSEE is seeking technical feedback on regulatory requirements.

Typical Subsea HIPPS



High pressure source

SIL 3 system with two valves

Designed to be tested to zero leakage

Option to mount HIPPS on jumper or manifold

No burst zone designed to allow sufficient time for the HIPPS valves to close

Flowline could be designed as burst critical

Fortified zone designed to protect the host facility and ensure there is no failure within close proximity.



BSEE HIPPS Involvement



- Participated in writing API RP 170, *Subsea HIPPS*, first published in 2009. The second edition has passed ballot.
- Funded a research study in 2008, investigating key regulatory concerns with HIPPS including:
 - HIPPS valve leakage rates and response time, length of fortified section, flowline burst criteria, and materials selection.
- Developed and shared with industry a technical guidance document on HIPPS.
 - Technical considerations, not regulations.
 - Details the information and safety measures to be included in new technology Deepwater Operations Plan (DWOP) for HIPPS.
- Reviewed and approved 1 conceptual HIPPS application (2006) and is currently working with a different operator on the 1st site-specific new technology DWOP.

BSEE Concerns and Issues to be Addressed by Industry



- HIPPS will be reviewed by an Independent 3rd Party.
 - What equipment, parameters, and/or methodologies should be included in this review?

- HIPPS in the GOM will be designed to meet a SIL 3 rating.
 - What are appropriate verification/testing frequencies?
 - What components must be considered in the analysis?

- Install dual HIPPS valves, tested to zero leakage.
 - HIPPS valves will not be associated with the Production Safety System.
 - If different than zero leakage is requested, Industry must provide detailed determination of, and engineering justification for, a safe leak rate.

BSEE Concerns and Issues to be Addressed by Industry



- What are the safe way(s) to relieve flowline pressure for a long term (hurricane) abandonment scenario?
- What are the considerations for determining the fortified section length?
 - What assumptions are made and how can they be verified?
- The personnel on the platform and the facility must be protected in the event of a HIPPS failure.
 - What methods will ensure a flowline break will not occur near the facility if the HIPPS fails?
- HIPPS should be autonomous.
 - Are there any HIPPS components which can be shared?
 - Which HIPPS outputs should trigger other system functions?

BSEE HIPPS Perspective



- BSEE has been directly involved in the development of guidance for design, installation, and testing of HIPPS.
- BSEE will provide preliminary feedback at any point in the design process.
- BSEE encourages communication to help us better understand your system, and to promote your better understanding our perspective, so...

...meet with us *Early!*

Contact Information



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